

# WATER CONVENTION 2016

CALL FOR PAPERS



Water Convention is jointly organised by:

# MESSAGE FROM THE EXECUTIVE DIRECTOR OF THE ENVIRONMENT & WATER INDUSTRY PROGRAMME OFFICE (EWI)



**PETER JOO HEE NG**

Executive Director  
Environment and Water  
Industry Programme Office

Chief Executive  
PUB, Singapore

Mark your calendars. The next Singapore International Water Week (SIWW) takes place from 10 to 14 July 2016.

The biennial SIWW is now a preferred gathering for thought leaders and practitioners in water management from governments, industry and academia the world over. 20,000 participants from 133 countries and regions came to Singapore for SIWW in 2014, which also witnessed the announcement of some US\$10 billion in new business. We are hopeful that SIWW 2016 will turn up even better outcomes.

As was in 2014, SIWW 2016 will be held alongside the World Cities Summit and the CleanEviro Summit Singapore. Together, this trio of conventions present a most compelling destination for anyone responsible for maintaining high-functioning cities or has a stake in creating sustainable urban growth and development.

The Water Convention is *le plat principal* on the SIWW programme. The 2014 edition saw 1,400 come together to hear presentations, share best practices and be briefed on the latest technologies. Come SIWW 2016, the attention of the Water Convention will again be squarely directed at strategy, innovation and available solutions. From high-level system resilience and sustainability, to potable water delivery, to water quality and health, to waste water management, and to specific industrial requirements, I am certain that participants will again find insight and inspiration at the Water Convention SIWW 2016.

As we wait for SIWW 2016 to come around, we are convening a select group of experts and practice leaders in water management in Singapore in June 2015 for the SIWW Technology and Innovation Summit (STIS). This group, through guided conversations, will help to illuminate the way forward in terms of the next wave of innovation in water and wastewater management. This STIS summit will pay specific attention to the municipal and industrial water sectors. Our objectives are, no less, to identify the key technological areas for urgent focus, and to suggest the best ways to bring innovative solutions to market.

The proceedings of STIS, captured in a document dubbed “Blueprint for Water Solutions”, will in turn inform the agenda of the Water Convention at SIWW 2016.

My colleagues and I are highly anticipative of a productive and instructive Water Convention SIWW 2016. In the interim, I urge everyone to respond resoundingly to this call for papers, and keep those contributions and submissions coming in.

See you all in Singapore in July 2016!

# MESSAGE FROM THE PRESIDENT OF THE INTERNATIONAL WATER ASSOCIATION (IWA)



**HELMUT KROISS**

President

International Water Association (IWA)

Singapore's water management, and the Singapore International Water Week, have become beacons for the water managers and water management of the future. Singapore's unique situation and location has led it to develop a water policy that attracts water experts from all over the world to study it, learn lessons from it. This is the backdrop for the long and successful co-operation between PUB, Singapore's national water agency, and the International Water Association (IWA) during the Singapore International Water Week (SIWW).

The IWA, as the global network of water experts, knows that technical solutions for water quality and quantity management cannot be easily transferred from one location to another. SIWW offers the opportunity to combine discussions on global developments in science, technology and management, with Singapore's demonstration of the full-scale implementation of the most advanced ideas on the relationship between water, rapid urban growth, economic and social development.

The IWA is developing integrated water solutions beyond reliable urban water supply and sanitation, where all stakeholders are represented and work together. This will only be achieved if we find a common professional language. Regular meetings of cross-sectoral experts help the development of this common language, based on sound science and close co-operation in practice.

During the recent World Water Forum in Daegu, Korea it was clear that water management is a leading issue for policy makers. This comes with added global relevance as water is closely linked to energy and food supply, and fundamental for public health and economic development. Progress and innovation in water research and technology is urgently needed, but this has to be complemented by management skills at all levels: from policy to consumers, from public administration to nature conservation.

Singapore showcases many innovative developments of relevance to the wider world. It is unique that water management is concentrated in one public utility. PUB, is responsible for all water, all consumers of water, for water supply, sanitation, flood control and nature conservation. Water scarcity during dry periods, water abundance during heavy rainfall events, and the strong variations of the sea level have pushed the city to invest in research, technology development and application. As a result, Singapore has established a network of expertise and successful public-private partnerships on a global scale.

Increasingly pressing water challenges can be solved if experts and leaders in water business and policy work together. SIWW offers a great opportunity to contribute to this task, which is of vital importance for human wellbeing, environmental sustainability and economic development. Communication and co-operation cannot only rely on electronic information, they urgently need human relationships to be nourished and developed. SIWW is an excellent starting point to make this a reality.

# MESSAGE FROM THE CO-CHAIRS OF THE WATER CONVENTION 2016 PROGRAMME COMMITTEE



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**HARRY SEAH**  
Chief Technology Officer  
PUB, Singapore

We warmly welcome you to the 7th edition of the Water Convention, a flagship event of the Singapore International Water Week (SIWW).

Over the years, the Water Convention has successfully served as a platform for professionals and experts from the entire spectrum of the water sector – industries, utilities, government, non-governmental institutions, and academia – to share on current developments, experiences, and inspire ideas to meet global challenges. During the 2014 Water Convention, we received an overwhelming response of more than 500 submissions from over 50 countries, which eventually led to more than 170 oral presentations and 170 poster presentations featured over 40 Water Convention technical sessions.

This year, the Convention will address a myriad of challenges and innovative solutions across the water cycle – maintaining and ensuring reliable and cost-effective alternative water sources and supply system, sustainable wastewater treatment and network management strategies, engagement and planning for a liveable and resilient environment, water quality and safety, and management of industrial water demand. Building upon the outstanding success of earlier editions, we are planning for the 2016 Water Convention to showcase and discuss solutions and inspiration for advanced and effective technologies and management practices that will help meet our global water challenges.

We welcome you to submit your abstract for Water Convention 2016. It will be a platform for you to share your ideas and experience with others, and together, as a global water community, we can work towards the goal of delivering water to everyone for every need, efficiently and effectively.



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**DARRYL DAY**  
Chair, International Water Association –  
Australian National Committee

# WATER CONVENTION 2016

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# THEMES FOR WATER CONVENTION 2016

The Water Convention provides a platform for water experts to share their solutions and practical experience, and address the challenges of the following domains or themes:

1. Delivering Water from Source to Tap
2. Effective and Efficient Wastewater Management
3. Water for Liveability and Resilience
4. Water Quality and Health
5. Water for Industries

The presentations should provide viable technologies, systems, processes, applications, and approaches to achieve a reliable and sustainable water ecosystem. Abstracts for all the listed themes and topics are welcome.



## THEME 1

### DELIVERING WATER FROM SOURCE TO TAP

Population growth, climate change, aging infrastructure, increased agriculture, and industry activities are continuously posing threats to the world's water supply. With advances in technology and practice, some countries are now able to mitigate these challenges by diversifying their water sources or tapping water from alternative (non-conventional) sources.

A paradigm shift with regards to alternative water sources is occurring although there continues to be much debate about the opportunities and risks of alternative water sources. Issues are centred on risk assessment, reliability and cost-effectiveness of the related treatment and supply system, the contexts where they might be viable, and the regulatory framework in which the technologies can operate. There are also concerns that the strong reliance on infrastructures may create rigidities, which may be problematic to adapt to changes in the future. In general, many argue that the ideal water supply service in cities of the future should be adaptable, resilient, flexible and sustainable. At the same time, there must be public buy-in and confidence in the supplied water. In the realm of water distribution, good asset management remains an important fundamental aspect of an efficient network, but "smart water" is quickly gaining the interest of utilities as well.

The sessions of Theme 1 aim to profile best practices and case studies of technologies relating to the treatment and delivery of water, including those from alternative water sources, in an efficient, effective and sustainable manner.

The topics of Theme 1 include:

- **Innovations in water distribution**
  - Asset management & optimisation
  - Network condition assessment & pipe rehabilitation
  - Latest technologies in leak detection of large diameter water mains
  - Sensors for water quality and hydraulic monitoring (including data management & analytics)
  - Smart metering systems (including data management & analytics)
  - Energy optimisation & recovery
- **Water efficiency and demand management**
  - Water saving technologies
  - Water restrictions
  - Water conservation measure / programme for household & industry
  - Public engagement & education
- **Innovations in water treatment**
  - Desalination
  - Direct & indirect potable reuse
  - Disinfection
  - Advanced oxidation processes
  - Membrane-based technologies
  - Non-membrane-based technologies
  - Energy optimisation & recovery
  - Centralised & decentralised systems



## THEME 2

### EFFECTIVE AND EFFICIENT WASTEWATER MANAGEMENT

With high energy costs and stricter regulations on greenhouse gas emissions and climate change policies, the pressure to reduce footprint and energy from wastewater and sludge treatment processes is fast becoming a critical research agenda.

This theme looks at sustainable wastewater treatment and network management strategies with a focus on low-energy processes, resource recovery and asset management. The wastewater treatment plant of the future will optimise the energy–waste–water nexus and achieve the aims of energy self-sufficiency, economic viability, and environmental sustainability. The vision is to maximise energy recovery and minimise energy consumption of the treatment process without compromising effluent quality. Additionally, with the increase in water recycling for both potable and non-potable use, it is important to monitor the wastewater discharged into sewers for toxicity or compounds which may affect downstream wastewater treatment processes.

Practice and research-oriented papers on the following sub-topics are welcome:

- **Innovations in wastewater treatment**
  - Membrane-based processes
  - Non-membrane-based processes
  - Anaerobic biological processes
  - Micro-pollutants removal
  - Low-energy organics & nutrient removal
  - Nutrients / resource recovery & use
  - Sludge treatment & biosolids management
  - Management of greenhouse gas emissions
  - Instrumentation, control & automation
  - Wastewater treatment in urban setting
  - Constructed wetlands for wastewater treatment
  - Synergies between centralised & decentralised treatments
  - Life Cycle Analysis (LCA)
- **Innovations in wastewater network management**
  - Drainage & sewer management
  - Asset management & optimisation
  - Sensors for wastewater monitoring
  - Stormwater flow & river basin management

## THEME 3

### WATER FOR LIVEABILITY AND RESILIENCE

Cities around the world today need to deal with the pressing issues of climate change and population growth while creating a liveable and resilient environment for their people and for generations. Governments, utilities, industries, and urban planners are working towards implementing strategies and programmes to manage water and achieve an efficient, adequate and sustainable water supply. As such, it is crucial to develop a systematic approach in defining liveability and resilience, and the integrated role played by water in achieving the vision of water-sensitive cities. There is also a need to relook the demand management aspect and localised alternative water sources, decentralised systems, and fit-for-purpose water production.

This theme looks into case studies and research activities that employ effective engagement, planning and management strategies, as well as the implementation of technologies and water systems to address the challenges. Papers which reflect the extent of how implementation of the case study or research activity is being impacted (positively or negatively) by the prevailing institutional, regulatory, pricing and governance arrangements are encouraged.

- **Strategies for embedding water systems thinking early in urban planning**
- **Sustainable development goals in cities**
- **Reframing demand side management**
- **Stormwater management for climate change adaptation**
  - Water-sensitive urban design
  - Flood resilience
  - Stormwater as a resource
- **The urban metabolism (water-energy-waste nexus)**
- **Water analytics and modelling**

## THEME 4 WATER QUALITY AND HEALTH

Strategies to manage the quality and safety of water, whether it is for drinking, domestic, recreational, agricultural or industrial purposes, are imperative to protect global public health, promote socioeconomic development, and maintain essential ecosystem services. Considerable effort has gone into improving access to safe drinking water and basic sanitation to reduce the prevalence of waterborne and water-related diseases. Yet, substantial challenges remain in many parts of the world. In addition, global driving forces such as population growth, climate change and its related extreme weather events, increasing water scarcity, rapid urbanisation, and industrialisation further threaten the quality of water resources and the sustainability of safe water supply.

This theme aims to address the major knowledge gaps, innovative developments, and emerging issues in water quality and health. Prevention, resilience, cost-effectiveness, and sustainability cut across this theme. Water quality management is increasingly placed in the context of the full water cycle, including wastewater management, water recycling and re-use, and the green, circular economy. Papers which focus on the following topics, presenting research results, case studies, practical applications or solutions, and management practices are encouraged.

- **Protecting source water quality**
  - Modelling & prediction
  - Protection of surface / ground water quality
  - Disasters & extreme events
- **Risk assessment and management practices**
  - Implementation, monitoring & evaluation of water safety plans
  - Going full circle: water safety plans & sanitation safety plans
  - Sanitation safety plans – methods, procedures, current and future directions
  - Water security
  - QMRA, decision analysis & surveillance
  - Chemical risk assessment
  - Realistic interpretation of health risks from emerging contaminants
- **Innovation in water quality monitoring**
  - Contaminants of emerging concern
  - Automation / robotics in water quality analysis
  - Real-time sensors & remote-sensing data
  - Advanced detection methods / technologies
  - Rapid microbial water quality test methods
  - Biological assays
- **Public policy and engagement for water quality issues**
  - Outreach, education, communication, & social media
  - Policy & regulatory frameworks for water quality

## THEME 5 WATER FOR INDUSTRIES

With the rapid development of urbanisation and industrialisation, water scarcity is a pressing challenge globally. The sustainability of our water resources in the near future is at risk. The global industrial sector has been identified as the second largest water user after the agriculture sector, and hence, reducing industrial water consumption is an effective means of addressing the global water crisis.

Water sustainability can be achieved in the industry by implementing comprehensive water efficiency management, being open to innovative technical solutions and strategies that can increase the efficiency of water usage, and adopting effective wastewater treatment and recycling technologies. The challenges in both availability of water source, which calls for greater water reuse, and quality of water discharge, which necessitates more stringent water treatment strategies, have been recognised. However, the interdependency of water and energy still requires attention, and strategies for recovering energy from processes will be of high importance.

This theme calls for papers on water-intensive industries such as thermoelectric power generation, oil and gas, food and beverage and mining under the following topics:

- **Water source and demand management in industries**
  - Availability of “fit for purpose” water
  - Combining different supply sources to address water demand
  - Regulatory impact on advances in water analytics & supervision
  - Water conservation strategies in industries
- **Innovative industrial processes, water & wastewater treatment, and recycling technologies**
  - Thermoelectric power generation
  - Oil & gas industry (on-shore and off-shore)
  - Food & beverage industry
  - Mining industry
- **Energy efficiency around industrial water intake, process water and discharge**
  - Energy reduction through process optimisation
  - Energy regeneration, recovery or alternative energy use

# ABSTRACT SUBMISSION PROCEDURES

- Prospective authors can submit abstracts for either oral or poster presentations.
- Abstracts should be limited to three A4-sized pages including figures, tables and references, and must contain adequate information to allow a sound referee review.
- The author must fill in all the information requested by the submission system and attach the abstract using the provided template
- Submission should be made online. Further information regarding submission of abstracts, registration for SIWW and paper presentation, including a template for the abstract, is available at [www.siww.com.sg/water-convention](http://www.siww.com.sg/water-convention).
- The deadline for submission of abstracts is **15 August 2015**. The abstracts will be peer-reviewed for selection and the authors will be notified about the acceptance of their paper for presentation by **15 December 2015**.
- Selection criteria include high technical quality, relevance to the themes/topics, and high information content. Abstracts which are deemed commercial in nature **will not be accepted**.
- The authors are strongly encouraged to submit the full papers once their abstracts have been accepted. Full papers will be further reviewed and considered for publication in IWA's Journal of Water Practice & Technology. The selected abstracts and full papers will be included in the Water Convention 2016 Conference Proceedings.

## REGISTRATION FEES

All accepted oral and poster presenters are required to register for the Water Convention and pay for the conference registration fees. The presentations will only be listed in the Convention programme upon receipt of the registration fees.

## IMPORTANT DATES

|                                                           |                  |
|-----------------------------------------------------------|------------------|
| Submission deadline for abstracts                         | 15 August 2015   |
| Notification of acceptance                                | 15 December 2015 |
| Deadline for presenters' registration                     | 30 April 2016    |
| Submission deadline for full papers and poster softcopies | 30 April 2016    |
| SIWW Water Convention 2016                                | 10-14 July 2016  |

## CONTACT INFORMATION

For any enquiries, please email the Water Convention secretariat at [waterconvention@siww.com.sg](mailto:waterconvention@siww.com.sg)  
Detailed information is also available at [www.siww.com.sg/water-convention](http://www.siww.com.sg/water-convention)



## INTERNATIONAL WATER ASSOCIATION (IWA)

The International Water Association is the organisation that brings together science and practice of water management in order to reach a world in which water is wisely managed to satisfy the needs of human activities and ecosystems in an equitable and sustainable way.

The IWA is a global knowledge hub and international network for water professionals and anyone concerned about the future of water. We bring together know-how and expertise to instigate ground-breaking solutions.



Singapore's National Water Agency

## PUB, SINGAPORE'S NATIONAL WATER AGENCY

### About PUB

PUB is a statutory board under the Ministry of the Environment and Water Resources. It is the water agency that manages Singapore's water supply, water catchment and used water in an integrated way.

### About PUB's tagline: Water for All: Conserve, Value, Enjoy

PUB has ensured a diversified and sustainable supply of water for Singapore with the Four National Taps (local catchment water, imported water, NEWater, desalinated water).

To provide water for all, PUB calls on all to play our part to conserve water, keep our water catchments and waterways clean and build a relationship with water so we can enjoy our water resources. If we all play our part, we can have enough water for all our needs – for industry, for living, for life.

### Find out more about us

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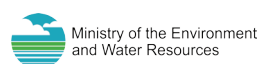


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### Organised By:

Singapore International Water Week Pte Ltd, a company set up by Singapore's Ministry of the Environment and Water Resources and PUB, Singapore's national water agency.



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### Held In:



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